Claims

[c1]   An autonomously movable home cleaning robot comprising:

a) a base housing;

b) a drive system mounted to said base housing, said drive system adapted to autonomously move said base housing on a substantially horizontal surface having boundaries;

c) a computer processing unit for storing, receiving and transmitting data, said computer processing unit attached to said base housing;

d) a dusting assembly operatively associated with said base housing and adapted to selectively rest on a surface to be cleaned;

e) a suction nozzle mounted on the base housing for withdrawing dirt and debris from the surface to be cleaned;

f) a recovery tank mounted on the base housing and in fluid communication with the suction nozzle;

g) a suction source mounted to the base housing and in fluid communication with the suction nozzle and the recovery tank for drawing dirt and debris through the suction nozzle and depositing the same in the recovery

tank; and

h) a power source connected to said drive system and said computer processing unit, whereby said computer processing unit directs horizontal movement of said base housing within the boundaries of the surface to be cleaned based upon input data defining said boundaries.

[c2] An autonomously movable home cleaning robot according to claim 1 and further comprising a cleaning fluid delivery system for depositing a cleaning fluid on the surface to be cleaned.

[c3] An autonomously movable home cleaning robot according to claim 2 and further comprising an agitator mounted on the base housing for agitating contact with the surface to be cleaned.

[c4] An autonomously movable home cleaning robot according to claim 3 and further comprising floor condition sensors mounted on base housing for detecting a floor condition and for generating a control signal that forms a part of the input data to the computer processing unit.

[c5] An autonomously movable home cleaning robot according to claim 4 wherein the computer processing unit controls at least one of the agitator, the delivery of fluid by the fluid delivery system, the suction source and the

drive system in response to the control signal.

[c6]   An autonomously movable home cleaning robot according to claim 5 and further comprising proximity sensors mounted on base housing for detecting a the boundaries of the surface to be cleaned and for generating a second control signal that forms a part of the input data to the computer processing unit

[c7]   An autonomously movable home cleaning robot according to claim 6 wherein the computer processing unit controls the drive system in response to the second control signal to keep the base housing within the boundaries of the surface to be cleaned.

[c8]   An autonomously movable home cleaning robot according to claim 1 wherein the input data is a remote control signal.

[c9]   An autonomously movable home cleaning robot according to claim 1 wherein the input data comprises a program that guides the base assembly through a predetermined path on the surface to be cleaned.

[c10]   An autonomously movable home cleaning robot according to claim 1 wherein the drive system comprises at least one wheel that is driven by a drive motor.

[c11] An autonomously movable home cleaning robot according to claim 1 wherein the dusting cloth is removably mounted to a pad that forms a support for the dusting cloth.

[c12] An autonomously movable home cleaning robot according to claim 1 and further comprising an agitator mounted on the base housing for agitating contact with the surface to be cleaned.

[c13] An autonomously movable home cleaning robot according to claim 12 and further comprising floor condition sensors mounted on base housing for detecting a floor condition and for generating a control signal that forms a part of the input data to the computer processing unit.

[c14] An autonomously movable home cleaning robot according to claim 13 wherein the computer processing unit controls at least one of the agitator, the suction source and the drive system in response to the control signal.

[c15] An autonomously movable home cleaning robot according to claim 14 and further comprising proximity sensors mounted on the base housing for detecting the boundaries of the surface to be cleaned and for generating a second control signal that forms a part of the input data to the computer processing unit.

[c16] An autonomously movable home cleaning robot according to claim 15 wherein the computer processing unit controls the drive system in response to the second control signal to keep the base housing within the boundaries of the surface to be cleaned.

[c17] An autonomously movable home cleaning robot according to claim 1 and further comprising floor condition sensors mounted on the base housing for detecting a floor condition and for generating a control signal that forms a part of the input data to the computer processing unit.

[c18] An autonomously movable home cleaning robot according to claim 17 wherein the computer processing unit controls at least one of the suction source and the drive system in response to the control signal.

[c19] An autonomously movable home cleaning robot according to claim 1 and further comprising proximity sensors mounted on the base housing for detecting the boundaries of the surface to be cleaned and for generating a second control signal that forms a part of the input data to the computer processing unit

[c20] An autonomously movable home cleaning robot according to claim 19 wherein the computer processing unit

controls the drive system in response to the second control signal to keep the base housing within the boundaries of the surface to be cleaned.

[c21] A method of autonomously cleaning a surface comprising the steps of:

a) applying a suction force to the surface through a suction nozzle to remove dirt and debris from the surface;

b) collecting the removed dirt and debris in a collection chamber;

c) substantially simultaneously applying a dusting cloth to the surface to be cleaned, and;

d) guiding the application of the suction force and the dusting cloth with the use of input data to a central processing unit.